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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,262	03/05/2002	Steven L. Stewart	USA/01/012	6437

33249 7590 02/24/2005

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EXAMINER

CHANG, VICTOR S

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/091,262

Applicant(s)

STEWART ET AL.

Examiner

Victor S Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,8-28 and 62-70 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,3-6,8-28 and 62-70 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Introduction***

1. The Examiner has carefully considered Applicants' amendments and remarks filed on 1/6/2005. Applicants' amendments to claim 1 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Rejections not maintained are withdrawn.

### ***Rejections Based on Prior Art***

4. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 08250835 (computer translation), generally as set forth in section 5 of Office action dated 8/24/2004, together with the following additional reasoning and response to argument.

It is noted that amended claim 1 now recites *inter alia* "encapsulated integrated circuit mounted on a connecting substrate", and also "wherein the thermoplastic adhesive has a complex viscosity of at least 50 Pa•s at a temperature from 140°C to 220°C inclusive at a shear rate of 0.1 radians per second, and wherein the thermoplastic adhesive is a solid or semi-solid at 55°C", which was deleted from the originally filed claim 1 in a response filed 7/2/2004.

With respect to Applicants' argument "JP '835 differs from the present invention in that it is directed to the manufacture of "an encapsulated integrated circuit mounted

on a connecting substrate" where the present invention is [in] directed to attaching such to PCB." (Remarks, page 9, bottom paragraph), the Examiner repeats (see Office action dated 8/24/2004, page 3) the relied upon JP 08250835 as follows: JP '835 is directed to a method of connecting a LSI package having metallic bumps (a surface mount electronic device) to a printed wiring board (printed circuit board, i.e., PCB) with an intermediate film-like sheet of an organic resin having a melting point and coefficient of thermal expansion about the same as the metallic bumps (i.e., a thermoplastic adhesive as the intermediate layer). The method improves the reliability of the connection (Abstract). JP '835 also expressly teaches that examples of LSI package include a BGA mold LSI package and a flip chip mold package (paragraph 0001), which reads on the element "encapsulated integrated circuit mounted on a connecting substrate having a bottom surface" of amended claim 1. In particular, the Examiner notes that Fig. (a) also clearly shows a molded (encapsulated) LSI package 1 mounted on a wiring board (PCB) 6, Applicants argument to the contrary notwithstanding.

With respect to Applicant's argument "JP '835 describes a film with perforations for the solder bumps of the device and requires a melting point and coefficient of thermal expansion (CTE) nearly equal to the solder for improved connection reliability. In contrast, the thermoplastic adhesive as described in claim 1 does not have a CTE or a melting point nearly equal to the solder." (Remarks, pages 9-10, bridging paragraph), the Examiner first repeats (see Office action dated 4/28/2004, page 4) that that it is irrelevant the prior art discloses additional material property not claimed. Second, in the absence of evidence to the contrary, since JP '835 teaches substantially the same

subject matter (mounting an encapsulated IC on a connecting substrate) as the instant invention, it is the Examiner's position that selecting a thermoplastic adhesive with suitable melt properties, such as suitable viscosities and melting temperature, are either anticipated by JP '835, or are obviously provided by practicing the invention of the prior art. It should be noted that where the claimed and prior art products are shown to be identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.01.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08250835 (Abstract) in view of Mohri et al. (US 6132543), generally as set forth in section 6 of Office action dated 8/24/2004, together with the additional response to argument, as set forth above.

6. Claims 6, 8-22 and 62-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08250835 (Abstract) in view of Schrock et al. (US 6541872), substantially for the reasons set forth in section 7 of Office action dated 4/28/2004, together with the additional response to argument, as set forth above.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S Chang whose telephone number is 571-272-1474. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Vsc*

Victor S Chang  
Examiner  
Art Unit 1771

2/10/2005



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SUPERVISORY PATENT EXAMINER  
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